

Instructions: Show all work. Answers without work can only be graded all or nothing. Partial credit is available only when work is shown.

1. Express the number 2458 in each of the following bases:

a. Base-2

(start with $2048=2^{11}$) 100110011010

b. Base-5

(start with $625=5^4$) 34313

c. Base-12

(start with $1728=12^3$) 150T

2. Write the following numbers, given in the indicated bases, in base-10.

a. $A72D1_{\text{sixteen}}$

$$10 \times 16^4 + 7 \times 16^3 + 2 \times 16^2 + 13 \times 16^1 + 1 \times 1 = 684,753$$

b. 26013_{seven}

$$2 \times 7^4 + 6 \times 7^3 + 0 \times 7^2 + 1 \times 7^1 + 3 \times 1 = 6870$$

c. 10011010111_{two}

$$2^{10} + 2^7 + 2^6 + 2^4 + 2^2 + 2^1 + 1 = 1239$$